Distributed Energy Resources Interconnection Seminar
Standard / Expedited Process

May 8th, 2024

Thank you for joining us.

The presentation will begin at 9:00am.

Please mute your phones to avoid any feedback.

Thank you.

Agenda

- Introductions
- Safety Message

  Spring Safety Tips

  - As seasons change, so do the hazards they bring. This Spring, continue to make safety a priority.
  - Plan your spring cleaning with a spring-cleaning safety checklist, including cleaning your carbon monoxide detector and replacing your smoke detector batteries.
  - Watching for slippery surfaces, inspecting your car tires, and using safety gear, you can continue to keep you and your loved ones safe this season.

Agenda

- ✓ Overview of Expedited/ Standard Interconnection Process
- ✓ DG Interconnection Documentation Requirements
- ✓ Engineering Design to Pre-Construction
- ✓ ASO Requirements & Group Study Link
- ✓ Net Metering Credit Allocation Portal
- ✓ FERC Order 2023 info

- Questions/ Discussion

Interconnection Contacts

- **Eversource Energy – Eastern MA DG**

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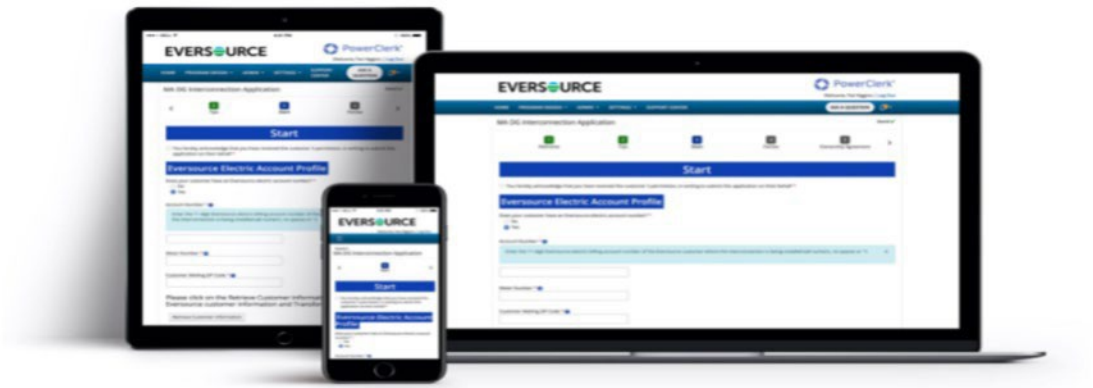
Power Clerk DG Application

- https://www.eversource.com/content/wma/about/about-us/doing-business-with-us/builders-contractors/interconnections/massachusetts/application-to-interconnect

POWERCLERK

You will use our PowerClerk portal to submit and track your applications. This online tool brings you:

- The ability to easily upload and review documents associated with your projects
- Automatic communications to help you keep track of your projects
- A mobile-friendly user interface that can be used on most devices including your laptop or tablet



You will need an Eversource.com user ID to use PowerClerk. If you don't have an ID, you'll be prompted to sign up.

EXPEDITED/STANDARD PROCESS

(single phase >15kw and three phase >25kw)-All Technologies

INITIATION PHASE

- 250 kW and Greater Pre-app takes place before submitting application.
- Completed Application
- Site plans
- 1 line diagram
- Cut Sheets
- Energy Storage Narrative
- Application fee
- Application Reviewed for completion

ENGINEERING REVIEW

- Depending on project type and size various levels of engineering groups are involved
- System Planning Engineering determines if Impact Study is required or not

Impact Study

- Impact Study Agreement or supplemental agreement or both and Payment
- Impact Study Completed with a +/-25% Interconnection Cost Estimate
- Early ISA Executed

No Impact Study

- A determination is made if any local upgrades are needed to the existing service or system.
- Early ISA Executed

DETAILED ENGINEERING

- Scheduled to begin after Customer pays 100% payment after ISA and Fully Permitted
- Final Sketch complete, Final Costs compiled, Easements by Property Owner Paperwork compiled, Town Hearings Scheduled, etc…

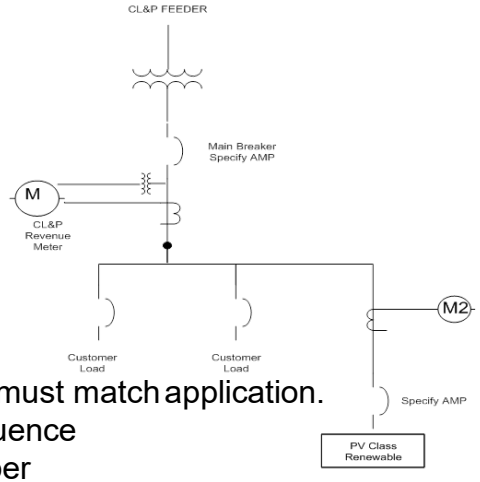
CONSTRUCTION PHASE

- ES construction
- Install meter and meter communication
- Relay settings confirmed
- Close out documents
- Schedule witness test for Projects with Eversource Recloser

Final Phase

- Test Energization
- Witness Test
- PTO
- Verify set up bill

One Line Diagram (SLD)



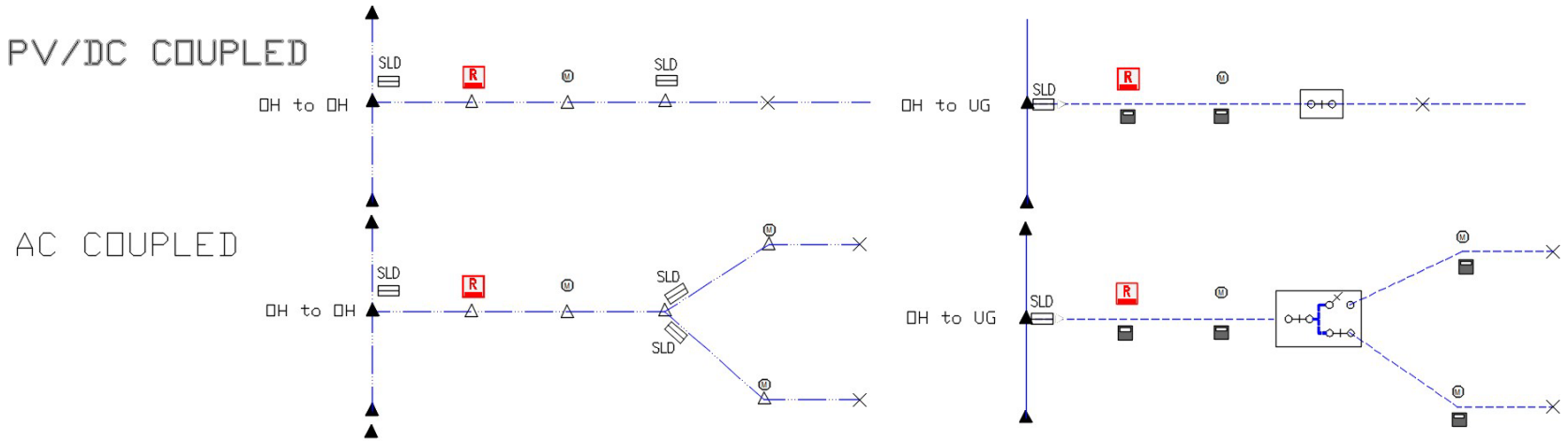
- **DOES need to be stamped by a MA PE.**
- Well documented electric service
- Point of Common Coupling with Interconnecting Device
  - **Note Existing Pole Number**
- Size of main breaker
- External disconnect switch
- Generator breaker & size
- Generator connection point
- kW rating matches application (name plate)
- Interconnecting Customer transformer configuration (if applicable) and impedance must match application.
- Location of revenue meter, instrument transformers and protection – Metering Sequence
- Title block with Customer name, address, date, drawing number and revision number
- Inverter settings in table form
- Definitive relay settings in table form, relay(s), PT's and CT's

Lessons Learned:

- All DG projects over 20 kW AC interconnecting to a transformer on a shared secondary per our tariff language below will require a dedicated transformer. This size accounts for the total kW including PV and Battery. Please keep this in mind as moving forward all projects that receive an ISA with this upgrade that choose to downsize to avoid the requirement will be required to withdraw the current application and reapply with the new size. Please consider this when sizing the application.
  - **"If the proposed generator is to be interconnected on a single-phase transformer shared secondary, the aggregate generation capacity on the shared secondary, including the proposed generator, will not exceed 20 kilovolt-ampere ("kVA")."- Page 50 DG Interconnection Tariff Eversource**
- SMART Meter Guideline Adherence (next slide further information)

One Line Diagram (SLD)

- Apply with an intended interconnection path and access route
- Eversource access to the interconnection needs to follow the interconnection path
- Interconnections will be kept as close to the mainline as possible
- Eversource equipment will not be located inside the generating facilities site fence
- **Below are one line representations of both PV/DC Coupled and AC Coupled Interconnections**



Site Plan

- Must show property/lot lines, street names
- Interconnecting Pole Numbers
- Must show revenue meter location and location of inverter(s) and/or generators
- Must show production meter if Net Metered
- Does not need to be PE Stamped
- Must be a plan form view i.e. vertical
- **NOT “bird’s eye”, isometric, 3/4 view, google maps**
- Title block with Customer name, address, date, drawing number and revision number

Cut Sheet If inverter based must be UL 1741 – SB

Field Layout and Pre-Construction

- Engineering and Design & Field Layout starts when…
  - Initial Payment is Received (100% Payment per the ISA is Received)
  - Customer Confirms Previously Provided SLD/Site Plan and all other provided documentation remains the same or Updated Interconnection Documents are provided which will be Re-Screened thru Change Order Process
  - Alta Survey Drawings Received
  - Town Permits have been approved for Proposed Design
  - Site Visit for all parties to confirm Utility Equipment Locations
- Eversource Construction starts when….
  - 100% payment received Post Design Completion
  - All Easements are Completed – Private and Public
  - Verizon work completed (if required)
  - Customer has delineated property extents and access road location
  - Entrance is cleared
- Changes made after Design has been finalized will only increase timeline
  - Avoid…
    - Relocating site entrance
    - Changing interconnection location/orientation
    - Modifying site conditions

ASO / Distribution Studies Overview

- Volume of DER applications seeking to interconnect has resulted in the need to ensure that DER projects do not cause adverse impacts* to the network.

- Eversource in coordination with ISO-NE will now assess each DER application and perform a ASO Impact Screen to determine if the facility may result in adverse impact to the system and the correct path of study.

- Level 0/1 studies
  - At a minimum, generally consist of a transfer limit assessment to ensure no degradation of ISO-NE Interface Limits. If adverse impacts found, a Level 3 ASO study will be required.
  - Some Level 0/1's may require more detailed analysis
- Level 3 studies
  - Conduct thermal and voltage steady state, short circuit, stability analysis
  - PSCAD analysis will be required as per ISO-NE PP5-6 requirements
  - Technical data will be requested from projects and is required to start studies

Group Study website link:
https://www.eversource.com/content/ct-c/about/about-us/doing-business-with-_us/builders-contractors/interconnections/massachusetts-application-to-_connect/distribution-group-studies

*See definition of Significant Adverse Impact in ISO-NE's *Transmission Planning Technical Guide*: https://www.iso-ne.com/static-assets/documents/2017/03/transmission_planning_techincal_guide_rev6.pdf

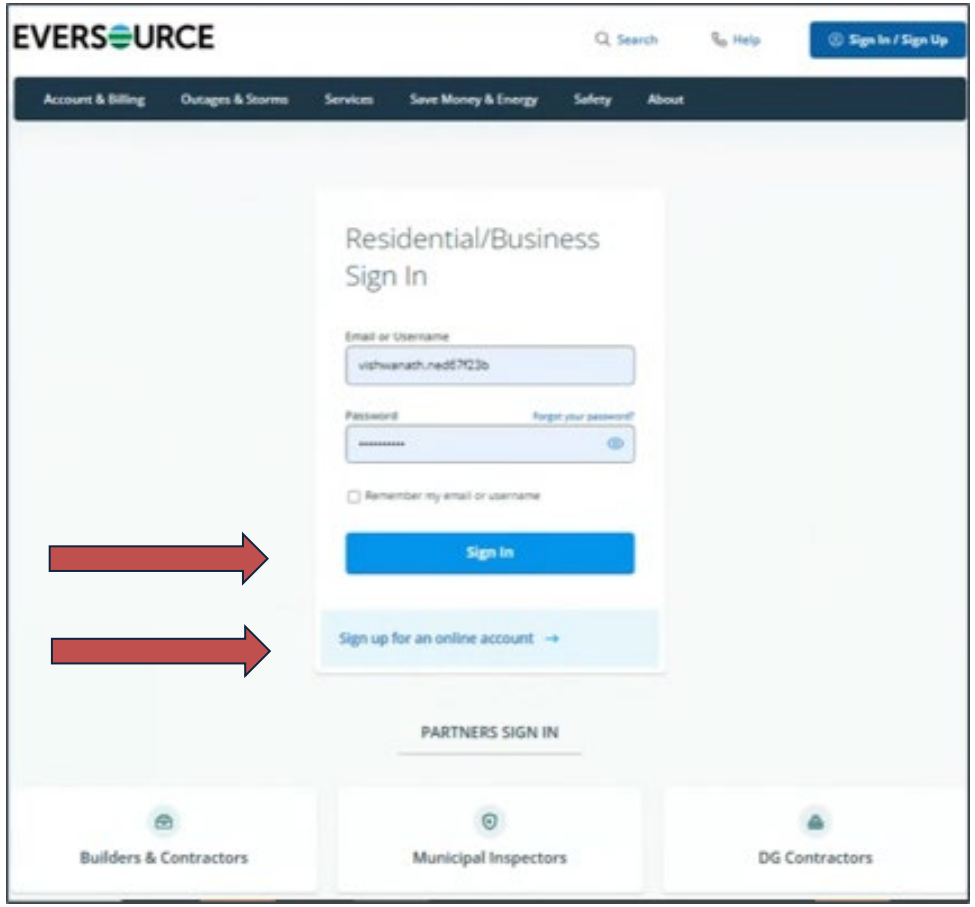
New Net Metering Credit Allocation Portal Available

What you need to know

- **Upload** your Schedule Z and Alternative On-Bill Credit forms
- Make **unlimited**, real-time net metering credit changes
- **Real-time data validation** occurs when a Schedule Z or Alternate On-Bill Credit (AOBC) form is uploaded so any errors can be immediately corrected
- **View** solar incentive **payments history**.

How to Log In:

- Portal link is available at eversource.com/XXXXX
- Log in using your eversource.com log in information. First time users must sign up for an online account.



FERC Order 2023

- On July 28, 2023, FERC issued Order No. 2023, an approximately 1500-page unanimous Final Rule adopting significant reforms to the federal standard Interconnection Procedures
- FERC Order 2023 is meant to address interconnection queue backlogs, improve certainty, and prevent undue discrimination for new technologies
- FERC's "Affected System Process" is not synonymous with DER "Affected System Operator" Study
- Three general buckets of reforms are required by Order 2023:
  - Change to a cluster-based study process from the existing serial process
  - Impose more stringent requirements on Interconnection Customers and Transmission Providers to enhance queue efficiency
  - Incorporate technological advancements into the interconnection process

ISO-NE's Latest *DRAFT* Compliance Proposal

- ISO-NE will study its Interconnection Requests in an annual cluster rather than serially
  - One region-wide cluster in which all Interconnection Requests are submitted in the same 45-day window
  - 60-day Customer Engagement Window to meet with customers and execute agreements
  - Once all customers are established the Cluster Study duration is 270 calendar days
  - If required due to attrition or other reasons, a Cluster Restudy may last an additional 150 calendar days
- FERC's Order establishes a prescriptive transition process. No new Interconnection Requests will be accepted after June 13 (Eligibility Date).After June 13, new IRs cannot be submitted until first regular cluster study in 2025.Transitional Study Agreements will be issued on August 12. Transitional Study Agreements must be executed by October 11 and the Transitional Studies will commence thereafter.
- After a transition period to finish currently pending federal studies, ISO-NE's first Cluster Study cycle will begin after October 11

Potential Impacts on DER ASO Studies

- Significant changes to the existing process that is used to obtain DER approvals from ISO-NE
- Several aspects of the future ISO-NE Cluster Studies are unfamiliar and currently unknown
- Eversource plans to parallel process ASO Studies as much as possible, but **ASO studies must sufficiently represent relevant projects and upgrades in the ISO-NE Cluster Studies**
- ASO studies do not have to wait for ISO-NE Cluster Studies if not electrically relevant, but this will not be known until after the ISO-NE Cluster commences
- If the Level 3 project is not within the boundary, it typically requires 250 business days. If located within the boundary, it must adhere to ISO-NE's FERC cluster study schedule, with an additional 90 days if transmission upgrades are identified.
- For the transition process, ASO Studies that are anticipated to receive I.3.9. approval within 90 days of ISO-NE establishing the Transitional Cluster Study base case will not have to respect the transitional cluster study.
- It is unclear to the extent ISO-NE Cluster Restudies might prevent DER ASO studies from proceeding

Summary of Resource Available

Mass Distributed Generation, Interconnections & Net Metering
https://www.eversource.com/content/ema-c/about/about-us/doing-business-with-us/builders-contractors/interconnections/massachusetts

ASO Impact Screening Flow Diagram
https://www.eversource.com/content/docs/default-source/builders-contractors/aso-impact-screen-diagram.pdf?sfvrsn=551cdd62_2

Technical Data Request List for Level 3 ASO Transmission Studies
https://www.eversource.com/content/docs/default-source/builders-contractors/aso-technical-data-request.pdf?sfvrsn=2d53d562_0

Hosting Capacity Maps
https://www.eversource.com/content/ema-c/about/about-us/doing-business-with-us/builders-contractors/interconnections/massachusetts/hosting-_capacity-map

DG Guidelines
https://www.eversource.com/content/docs/default-source/builders-contractors/distributed-generation-guidelines-interconnection.pdf?sfvrsn=5432d062_2

SMART Guidelines
https://www.eversource.com/_content/ema-c/about/about-_us/doing-business-with-_us/builders-_contractors/interconnections/_massachusetts/smart-solar-_program-installers

THANK YOU!!